

# Illinois ITS

Newsletter for the Illinois Statewide ITS Strategic Plan and Architecture Technical Assistance Project

Number 1

July 2004

## Illinois Statewide Strategic ITS Plan

The Illinois Department of Transportation (IDOT) recently began a project to develop and coordinate deployment of Intelligent Transportation Systems (ITS) around the state. The project will give the state a framework to efficiently use technology to solve transportation problems.

As congestion increases and road construction becomes more frequent, it is essential that travelers and agencies make better use of the existing infrastructure to make transportation safer, better coordinated, and operate more efficiently.

The development of the Statewide ITS Strategic Plan and Architecture will:

- Coordinate planning and deployment of ITS technologies to leverage funding and promote interoperability
- Provide a working tool for improved planning, scheduling and integration
- Improve the sharing and dissemination of real-time information
- Meet regional needs and support improved operation and management of the transportation system
- Assist the development of required ITS architectures to guide deployment

The Illinois Statewide Strategic ITS Plan provides a strategy to meet transportation challenges through the application of ITS technology. The plan will identify short and long-term projects focused on needs. The Statewide Architecture provides a framework to coordinate use of various ITS technologies throughout the state to improve operations, to assist travelers, and to provide guidance in the development of regional architectures.

## ITS is Sharing Real-Time Information

ITS, or Intelligent Transportation Systems, applies computer, electronic, and communications technologies to improve the safety, reliability, and operation of transportation. ITS technologies provide a tool to collect, analyze, act on, and distribute real-time information on the performance of the many parts of our complex transportation system. By facilitating the sharing of this information ITS supports more effective decisions by public and private partners who operate specific components of the system, as well as by individual travelers.

ITS is often a very cost-effective tool. Typical measures of effectiveness include:

- Safety
- Capacity / throughput
- Delay / time savings
- Cost savings
- Energy and environment
- Customer satisfaction

For additional information on ITS benefits: [www.benefitcost.its.dot.gov](http://www.benefitcost.its.dot.gov)

## What is an ITS Architecture?

ITS Architectures provide the framework for how transportation system components interact to deliver services to users. ITS Architectures are developed at National, Statewide, Regional, and Project levels to assure that the system is integrated and offers the greatest benefits to users. An architecture identifies the elements of the system, lays out what each element does, and describes the flows of information between components. Creating an ITS architecture helps to ensure that current and future systems and components, created through different projects, will operate together through the application of national ITS standards.

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**Intelligent  
Transportation  
Systems are...**

*People using technology in  
transportation to save  
time, lives, and money.*

## The Strategic Planning Process

Stakeholder input is essential to development of the Illinois Statewide Strategic ITS Plan and Architecture. The Project Team has incorporated several methods to outreach to stakeholders including workshops, surveys, interviews, newsletters, a project website at [www.ilits.org](http://www.ilits.org), and an extensive committee structure. Development of the plan started in April with a kick-off meeting in Springfield to give key stakeholders an overview of the project. A project Steering Committee has been formed to provide policy direction and a Technical Committee of stakeholders has been formed to provide input on the technical issues.

Surveys have been distributed to more than 200 stakeholders and follow-up interviews are being conducted with selected stakeholders. Stakeholder workshops were conducted in each region to focus on what has been accomplished in that region and ascertain the future priorities of stakeholders.

Substantial effort is also being devoted to assist local stakeholders and champions in the development of regional architectures by stakeholders in each region. Two Architecture Development Workshops will be conducted to provide an overview of ITS architecture and to identify technical and staff resources to assist in development. Focused Regional Architecture Workshops will be held by local agencies in the fall to help identify and prioritize needs and goals. The Project Team will be available to assist regional architecture development throughout the process.

Steering and Technical Committee meetings and ITS Strategic Plan Workshops will be held throughout the project. And the project website offers a continuing way for stakeholders to provide input.

## Participating Agencies

Cities – Public Works  
 Counties – Public Works  
 County Sheriff Offices  
 Emergency Service and Disaster Agencies  
 Federal Highway Administration  
 Illinois DOT Districts and Central Office  
 Illinois State Toll Highway Authority  
 Local, Regional Transit Agencies  
 Local Fire and Law Enforcement Departments  
 Metropolitan Planning Organizations  
 Regional Planning Commissions  
 Commercial Vehicle Operators  
 Illinois State Police  
 Railroads  
 Bordering State DOTs

## Project Schedule

The Statewide ITS Architecture will be completed by December 2004 and the ITS Statewide Strategic Plan by June 2005. This enables each region to use the Statewide ITS Architecture in developing their regional architectures ahead of the April 2005 federal deadline. By mid-2005, the Illinois Statewide ITS Strategic Plan and the related Architectures will help guide our use of ITS to make transportation safe and efficient in the years to come.



## Upcoming Milestones

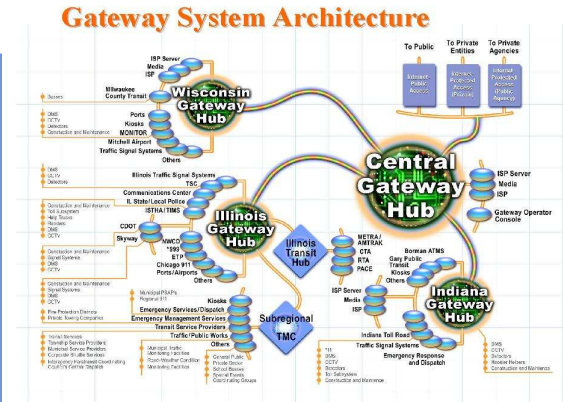
- Survey Results Summarized – July 2004
- Regional Architecture Development Workshops – September 2004
- Illinois Infrastructure Inventory Completed – September 2004
- Statewide Architecture Completed – December 2004
- Federal Deadline for State and Regional Architectures – April 2005

	Task Name	2004												2005											
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		
1	Technical Review of Existing Documentation (Inventory)																								
2	Outreach and Stakeholder Participation																								
3	Statewide ITS Architecture																								
4	Statewide ITS Strategic Plan																								
5	Communications Infrastructure Inventory and Assessment																								
6	Architecture Maintenance and Operating Plan																								
7	Tech Assistance in the Development of Regional Architectures																								
8	Coordination and Meetings																								

## Representative ITS Projects in Illinois

# Gateway Traveler Information System

The Gateway Traveler Information System is a cooperative effort of the GCM Priority Corridor led by the Illinois, Indiana, and Wisconsin Departments of Transportation. The Gateway disseminates information to both public and private partners via a website that displays current traveler information. Site visitors can view a variety of information including cameras, traffic maps, and dynamic message sign postings. Newly developed interfaces also include a display of traveler information from the Illinois Tollway, a link to transit information on the traffic congestion map, and links to the other travel-related websites.



The main function of the Gateway is to collect and integrate traveler information data from a variety of sources, fuse the information together, and distribute the information to end-users. The Gateway interfaces with traffic management centers, transit operators, emergency dispatch centers, police and fire departments, weather systems, and traveler information service providers. [www.gcmtravel.com](http://www.gcmtravel.com) has been honored by the Federal Highway Administration as the Outstanding Traveler Information Website for two consecutive years.

## Automated Vehicle Locators for Transit

Many transit authorities throughout Illinois utilize an Automated Vehicle Location (AVL) system on their fleet vehicles. AVL systems allow transit operators to optimize use of their resources. AVL systems monitor and track transit vehicles, providing a more accurate picture of the overall operations of the transit system including real-time location information. The systems generally consist of a two-way communications link between the transit vehicles and dispatch center and a Global Positioning System (GPS) receiver in each vehicle. Utilizing AVL on transit can improve on-time performance and transit operators can pinpoint vehicle locations in case of an emergency.

## Emergency Service Patrols

ITS supports improved incident management services. The Illinois Tollway's Highway Emergency Lane Patrol (HELP) vehicles provide assistance to Tollway motorists. HELP trucks are also dispatched to back-up every accident with reported lane blockage. This service operates daily from 5:00 a.m. to 8:00 p.m. During other hours, routine motorist assistance activities take place using an on-demand approach. The HELP service removes stopped vehicles on the Tollway in order to reduce potential roadway hazards, increase motorist safety, and provide an enhanced Tollway service. The Emergency Traffic Patrol operated by IDOT District 1 provides services to motorists on Chicago expressways. IDOT District 8 also operates Emergency Patrol Vehicles to assist motorists in the St. Louis Metro East region. Numerous private tow and recovery partners also provide motorist services throughout Illinois.



## IDOT District 8, Greater St. Louis Area

Enhancements continue to the ITS infrastructure in the Illinois portion of the St. Louis metropolitan area. DMS, traffic hotlines, call boxes, motor assistance patrols, a traffic information website, and a newly upgraded traffic management center are some of the state-of-the art tools used to help motorists safely and efficiently navigate around the St. Louis area. A consolidated Bi-State St. Louis Metropolitan Area Regional ITS Architecture, the result of combining the District 8 Regional ITS Architecture with the St. Louis Regional ITS Architecture, will ensure that traffic management efforts throughout the metropolitan area are coordinated.

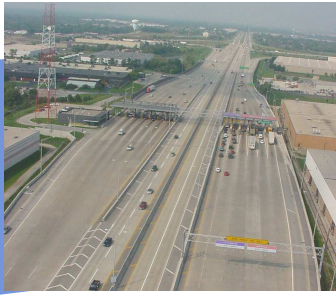
## Dynamic Message Signs

Dynamic Message Signs (DMS) provide drivers with information regarding incidents, congestion, construction, detours, or closures along their route. Strategically positioned, DMS can provide information in advance of decision points. DMS has been deployed throughout the state on freeways, expressways and tollways and are an effective traffic management and traveler information tool. DMS are also a critical component of the Illinois statewide AMBER (America's Missing Broadcast Emergency Response) alert program. In this case, and in others, coordinating messages make DMS more effective.



## Illinois Tollway IPASS and TIMS

Drivers who take the Illinois Tollway are increasingly turning to I-PASS to help shorten their travel time. IPASS-only and IPASS-Express lanes allow I-PASS users to travel the entire Tollway without having to stop to pay tolls, reducing overall congestion at toll plazas.



The Tollway's Traffic and Incident Management System (TIMS) is unique in providing a two-way interface between the Illinois State Police CAD system and Tollway operators. TIMS collects real-time

traffic information to assist operators in determining the appropriate response to events. TIMS provides current travel times and roadway advisories to the media and public at [www.illinoistollway.com](http://www.illinoistollway.com) and on DMSs. TIMS is also integrated with the Gateway system to share information on Tollway conditions with other agencies and to receive real-time information from those agencies.

## Illinois Commercial Vehicle Initiatives

Electronic One-Stop Shopping (EOSS) is an on-line system to facilitate commercial vehicle credentialing and permitting procedures to save motor carriers time by providing a single location to electronically apply and pay for permits. EOSS initiative integrates and supports the commercial vehicle operations (CVO) activities of several state agencies by providing collected data as an information base for monitoring safety, road worthiness, taxes, and permits. EOSS is an initial phase of Illinois deployment of the national Commercial Vehicle Information Systems and Network (CVISN). PrePass electronic clearance and Weigh-in-Motion processing is also operational at all Illinois interstate weigh stations. Truck parking management systems serve selected, and video security systems serve all, interstate rest areas.

## IDOT Traffic Systems Center

IDOT District 1's Traffic Systems Center (TSC) monitors sensors placed at ½-mile intervals over 153 miles of northeastern Illinois expressways. Data from over 2,200 vehicle detectors is transmitted to Oak Park where algorithms determine congested segments and travel times every 5 minutes. The TSC facility was renovated and the hardware and software upgraded in 2002. TSC monitors CCTV to enhance incident detection, and operates 113 ramp meters, 22 DMS, and provides traffic information for highway advisory radio. TSC has provided real-time traffic information to the media and public since 1974. The TSC is integrated with the Gateway system as envisioned by the Northeastern Illinois regional and GCM corridor architectures.

## Pace Intelligent Bus System

In suburban Chicago, the Pace Intelligent Bus System (IBS) incorporates voice and data communications and automatic vehicle location systems. Automated vehicle location systems monitor on-time performance and passenger counters provide accurate and timely ridership information to support strategic planning. Automatic visual and verbal announcements of bus stops inform riders of location and services. Digital communications between bus operators and dispatchers include a comprehensive emergency notification system, and advanced vehicle system monitoring that records engine data and warns of mechanical problems. IBS will be integrated with the RTA Illinois Transit Hub to provide real-time bus location information as part of the BusInfo system.

## IDOT District 4, Peoria

ITS technologies and strategies were employed to enhance the transportation system operations and management as part of the three-year reconstruction of Interstate 74 (I-74) through Peoria and East Peoria. A project system architecture, conceptual, and preliminary design for the ITS elements of the I-74 transportation corridor were developed. The preliminary system design was then used to provide the foundation for the final design of the ITS components of the project, most of which will remain in place when construction is complete. ITS elements include two permanent DMS, freeway detection, and ten CCTV cameras on the freeway and five cameras on city streets. The District's Radio Room was recently remodeled and expanded to become the District's Communications Center, from which regional traffic operations are managed. Construction is underway and project completion is expected in 2006.



## IDOT District 1 ComCenter

IDOT District 1's Communications Center (ComCenter) is a 24/7 operations center serving the Chicago region. The ComCenter operates the reversible lanes on the Kennedy (I-90/94) Expressway, controls the CCTV system, and utilizes advanced two-way radio communications system to dispatch District 1 resources and interface with public safety agencies. Recent ComCenter upgrades include 13 large format plasma video displays and a video wall to display real-time congestion and traffic information, weather radar, and live video feeds. The ComCenter receives Gateway information and now is providing snapshot video to the Gateway from CCTV in construction areas.

## Regional Stakeholder Workshops – Statewide Focus

A series of eight regional stakeholder workshops was held throughout Illinois in May and June 2004 as a part of the outreach efforts for this project. These workshops were held in:

- Rockford (Region 2A)
- Moline (Region 2B)
- Ottawa (Region 3)
- Peoria (Region 4)
- Champaign (Region 5)
- Springfield (Region 6)
- Mt. Vernon (Regions 7-9)
- Collinsville (Region 8)

There were three primary goals in conducting the workshops. One was to identify stakeholder needs in each region, particularly from a statewide or inter-regional perspective, which was done in breakout sessions. Next, those in attendance were asked to rank the identified needs to reflect the priorities of their agencies or organizations. And third, there was extensive discussion about “who talks with whom” from an operational perspective for each organization/agency in attendance; at this point in the project, the focus is on the “who”, not the “how”.

Along with the surveys and follow-up interviews, the information gathered at the workshops will greatly assist the project team in developing a statewide ITS Concept of Operations as a part of the Statewide ITS Architecture. It will also be useful to each region as it develops its own Regional ITS Architecture.

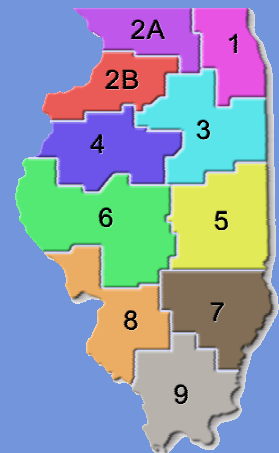


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### Project Website

The project website contains more detailed project information including meeting and workshop schedules, project documents, resource links, and a discussion board. The website is located at: [www.ilits.org](http://www.ilits.org)



**Illinois Department of Transportation**

